Figure 1: ISA2cd Nucleotide Sequence

```
caagatggat aacctccgtg aatgcataaa ccgcaaaaga agactacttg ccttaccaga      60
tgttcctgaa acttcggatg cctttctaag tgatttgaga catctataca tgtgtgttgc     120
tttctgtgat caacacaaaa ccactggaga cgaatcaaga ttcaccaacc tggaattact     180
tgaccaagat gaagcactag gtgcccaaag agcttttgaa gccaaacatg gaataaaagg     240
aggttcttta ggagacgttc ttgaccatga actgaaaaag gtcattgaat ttacttttac     300
ttctggaagt ttgtatattg ccgaacaaag aaaaagaaag actcaagcag actcaataat     360
tgtgtgcgtt tcagaaggac ttaacgactt cagcgtatca cacggagtgc tagacatggg     420
acttgtggaa acaggggtga atgcagtaag agatttctgc acacaaaacg gaataccaat     480
gaagataaat caggtaggat ccacgagaac accaacaccg atcagcacat gcaaaatctc     540
tgaacaaata acacgacaga taaacagtac aattactgaa aggaaaatgg aaacagtact     600
ggcagcaatc gcaattaaac cagaactcaa actaactcag aaaggatgca gaccttgtaa     660
agaactagaa gatgaaaata ttctgtggat ggaccctcaa ttctgtgaaa ttgatgaaag     720
ttttccttac agaggagggc catacgggaa cttcctgcaa gaattgctgc ttacaaccaa     780
cgacgtagag accaacggga aagacagaga agaagtagta aagaagatac tggataacaa     840
ggcgttcacc gttgaaagtg gtgaatgcat aataacactt ccagacaaaa tgacttgttt     900
cggagaacag gagaagaaga gaccagcaac aatagacgaa gtgagaaccg caggagaaag     960
gtttgaacag agtgttaaac cgaaaaccca aagatatgga aggttatcag acaaatggat    1020
ggagcttgaa aagtttatct ttactgcaag caaaacagaa gtggatactt tcctttctgt    1080
agggaccgaa agacttgagt cggttggagt gtgtgtcgga gctttacaca gagcgaccac    1140
aaccaggata attagaccta tgattcaagg agggaaatgt tgggggatga tgttcaaaac    1200
aaagtccaaa atgggagaca cgaggaagga aggatactgt cacgcaatca ttttcggaaa    1260
aggggaagat aaatcaggac aaaacaagat gacaatgatg gggaaaacag tacattggca    1320
tctaagagta gttaagtcta aaggagactg gatggcgcaa caactctgtg caaacaaaag    1380
cagaatatgg gaacatgacc ctgagctagt aacagaagga gtgacagttc taatgacgcc    1440
tttttctcag aaaattgcca ccattagtag atggagggca atgaggttag acagcatgtt    1500
tcatgtttct agtgcctggc atcattcacc tgcgtgtgaa gctgcatcgg caatgctgag    1560
aaagtttgtg gagatagtac atgccatcaa ccagaaaaga gattggggtg ttgtggggag    1620
tatggaggac atggtgaagg aagtggagga aataggggag cacttgcaga cggcatgtga    1680
ttttagagtt tacaacatgt gcaaagcctt gattcagaaa attgcagtca gtacccaatg    1740
agtggttatt tacttgtaaa ttgttgtgtg tttgacgata tgtatttgtc gacgcggccg    1800
cggtcgacgc ggccgcgaat t                                              1821
```

Figure 2: ISA2cd Amino Acid Sequence

```
      1          11         21         31         41         51
      |          |          |          |          |          |
    1 MDNLRECINR KRRLLALPDV PETSDAFLSD LRHLYMCVAF CDQHKTTGDE SRFTNLELLD    60
   61 QDEALGAQRA FEAKHGIKGG SLGDVLDHEL KKVIEFTFTS GSLYIAEQRK RKTQADSIIV   120
  121 CVSEGLNDFS VSHGVLDMGL VETGVNAVRD FCTQNGIPMK INQVGSTRTP TPISTCKISE   180
  181 QITRQINSTI TERKMETVLA AIAIKPELKL TQKGCRPCKE LEDENILWMD PQFCEIDESF   240
  241 PYRGGPYGNF LQELLLTTND VETNGKDREE VVKKILDNKA FTVESGECII TLPDKMTCFG   300
  301 EQEKKRPATI DEVRTAGERF EQSVKPKTQR YGRLSDKWME LEKFIFTASK TEVDTFLSVG   360
  361 TERLESVGVC VGALHRATTT RIIRPMIQGG KCWGMMFKTK SKMGDTRKEG YCHAIIFGKG   420
  421 EDKSGQNKMT MMGKTVHWHL RVVKSKGDWM AQQLCANKSR IWEHDPELVT EGVTVLMTPF   480
  481 SQKIATISRW RAMRLDSMFH VSSAWHHSPA CEAASAMLRK FVEIVHAINQ KRDWGVVGSM   540
  541 EDMVKEVEEI GEHLQTACDF RVYNMCKALI QKIAVSTQ
```

Molecular weight: 65336.10
Theoretical pI: 6.94

Figure 3: ISA1mta Nucleotide Sequence

```
gcaaagatyg ctcaaatccc aaaaataata cagaaaacgt ataagagatg gccgataaag      60
gtatgactta ttcttttgat gtcagagaca acaccttggt tgtaagaaga tctaccgcta     120
ctaaaagtgg cattaagatc tcctacagag aggatcgagg aacatcactt ctccaaaagg     180
cattcgccgg gacagaagat gaattctggg tggagttaga tcaagatgtc tacgttgaca     240
aaaagattag aaaattcctg gaagaagaga aaatgaagga catgagcaca agagtgtctg     300
gagcagtggc agcagcaatt gaaagatcag ttgaatttga caatttctca aaagaagcag     360
cagctaacat tgaaatggct ggtgtagatg atgaagaagc tggaggaagt ggtctggtag     420
acaacagaag gaagaacaaa ggggtctcaa acatggccta caatctgtct ctattcatag     480
ggatggtgtt tcctgctctc actactttct tcagtgctat cctatcagaa ggtgaaatga     540
gcatctggca aaatggacaa gcaatcatca gaattctggc actggcagat gaagacggaa     600
agagacaaac aagaacagga ggacagaggg tggacatggc tgatgtaacc aagctgaacg     660
tagtcacggc taacgggaaa gtcaagcaag ttgaagtaaa cttgaacgat ctcaaagcag     720
cattcaggca gagtagacct aaaagatcgg actacagaaa agggcaaggt tccaaggcta     780
cagaatcaag catctccaac caatgtatgg cactgattat gaaatctgtg ctgtcagcag     840
accaactttt tgctccggga gtgaagatga tgaggacgaa cggtttcaat gcgtcgtaca     900
caacactggc agaaggggca aacattccga gcaagtacct aagacacatg aggaactgcg     960
gaggagtagc tctggacctg atgggaatga agaggatcaa aaactcacct gaaggagcca    1020
agtctaagat cttttccatc atccagaaga aagtaagagg aagatgtcgc acagaggagc    1080
aacgcctcct gactagcgca ctgaaaatca gcgacggtga aaacaagttc cagagaatca    1140
tggacactct atgtacaagc ttcctgattg accctccaag aactaccaaa tgcttcattc    1200
cacctatttc cagtctcatg atgtacatcc aagaaggcaa ctctgtactg gcaatggatt    1260
tcatgaaaaa cggagaggac gcctgcaaga tctgcagaga agccaaactg aaagtggggg    1320
taaacagtac gttcacaatg tcagtagcta gaacatgcgt tgcagtgtca atggttgcaa    1380
cagctttttg ttctgcagat atcatcgaga atgcagtgcc tggttccgaa aggtacagat    1440
ccaacatcaa ggctaacaca accaaaccaa aaaaggactc cacttacaca attcaaggac    1500
ttagattgtc taacgtgagg tatgaagcaa gacctgaaac atcacaaagc aacacagaca    1560
gaagttggca agtgaacgtg actgacagct tcggaggact tgctgtgttc aaccaagggg    1620
caattagaga aatgctagga gacggaacat cagagacaac tagtgtgaac gtcagagccc    1680
tggtgaagag aattctgaaa tcagcttcag agaggagtgc aagagctgta aagacattta    1740
tggtgggaga acaagggaaa tcagctattg ttatctctgg tgtgggactg ttctctattg    1800
actttgaagg ggtagaggaa gcggaaagga taactgacat gacacctgaa attgagtttg    1860
acgaggacga cgaggaagag gaagacattg acatttagag tgacaattat gtaactttct    1920
aattacccta tattgtttga atatataatg aaactattgt gtgttaaagg ttgtgggttt    1980
gattattaaa tttaaattga aacggtattg acgatatt                            2018
```

Figure 4: ISA1mta Amino Acid Sequence

```
      1          11         21         31         41         51
      |          |          |          |          |          |
    1 MADKGMTYSF DVRDNTLVVR RSTATKSGIK ISYREDRGTS LLQKAFAGTE DEFWVELDQD    60
   61 VYVDKKIRKF LEEEKMKDMS TRVSGAVAAA IERSVEFDNF SKEAAANIEM AGVDDEEAGG   120
  121 SGLVDNRRKN KGVSNMAYNL SLFIGMVFPA LTTFFSAILS EGEMSIWQNG QAIIRILALA   180
  181 DEDGKRQTRT GGQRVDMADV TKLNVVTANG KVKQVEVNLN DLKAAFRQSR PKRSDYRKGQ   240
  241 GSKATESSIS NQCMALIMKS VLSADQLFAP GVKMMRTNGF NASYTTLAEG ANIPSKYLRH   300
  301 MRNCGGVALD LMGMKRIKNS PEGAKSKIFS IIQKKVRGRC RTEEQRLLTS ALKISDGENK   360
  361 FQRIMDTLCT SFLIDPPRTT KCFIPPISSL MMYIQEGNSV LAMDFMKNGE DACKICREAK   420
  421 LKVGVNSTFT MSVARTCVAV SMVATAFCSA DIIENAVPGS ERYRSNIKAN TTKPKKDSTY   480
  481 TIQGLRLSNV RYEARPETSQ SNTDRSWQVN VTDSFGGLAV FNQGAIREML GDGTSETTSV   540
  541 NVRALVKRIL KSASERSARA VKTFMVGEQG KSAIVISGVG LFSIDFEGVE EAERITDMTP   600
  601 EIEFDEDDEE EEDIDI
```

Molecular weight: 68050.47

Theoretical pI: 8.20

Figure 5: ISA3mx Nucleotide Sequence

```
atgtctggat ttaacctcga ggtaatggtg ccggaacaag gaggaaaagt ggtcttcagc      60
cttactgaaa cggggtcatg tgtctcgttt tacggagatg atgaaccagg tgaagggtcc     120
tgcgaacttg cctctgaaaa catggatttt ccaagttgtc ctctggggaa tggagatgac     180
ttctgtctgt cgctggcgct aagcacaatg agatggtctg ggatgaccaa gagaaacaac     240
ttcatggaca gattcattgg aagttttgtt cactgtacac cagtgatgat ctggtcgtat     300
ggaaatttgt ccaagaaaag ccatcacaaa atggtttgcc acacttgccc agacgagtac     360
aagttcagtg acaaggacga gatgcaggga tactatgagg gatgtctaga ggcttctact     420
gacattttcc ttgatgaact tgctactgtt gttacaggtg gcttctttcc tgtcggactc     480
aaaggttcct ggggaggatg gtacctcaag tacgtcaggt atgctggacc tcttgcggga     540
tcaagtggat tcattgtcaa tcaacgattc tacgacagag cccaaaacaa gactggatcc     600
agggttgtat ccatggttga aatggacgga gacggcttat cgttcatcta cgagaagcct     660
agcgtctacc atagtgatgg gtgcactggg tcagcagcga ggttctggaa acgggatcac     720
aatgagagag ctggagttga gcttagggct ggacttcact tcagaatgtg attggttgaa     780
aacttgttat gtaaacaaga attttgtgtt tttgtcagaa aaagaaattg ctgtaaacat     840
ggaagttgaa aaattcattt gtaatgagaa ctaaagatgt ctttgtgttc aaattttaac     900
taatgacaat atatgaaata tgtcgtacat ggtgttgatg ataatttta aaacgaaaag      960
gagaattttt actaaaataa aaaaaaaata aaaaaaaaaa aaaagaaaaa aaaaaaaaaa    1020
aaaaaaagtc gacatcgata cgcgtggtca                                     1050
```

Figure 6a: Predicted Amino Acid Sequence of unspliced (M1) product of ISA3mx

MSGFNLEVMVPEQGGKVVFSLTETGSCVSFYGDDEPGEGSCELASENMDFPSCPLGNGDD 60

FCLSLALSTMRWSGMTKRNNFMDRFIGSFVHCTPVMIWSYGNLSKKSHHKMVCHTCPDEY 120

KFSDKDEMQGYYEGCLEASTDIFLDELATVVTGGFFPVGLKGSWGGWYLKYVRYAGLAG 180

SSGFIVNQRFYDRAQNKTGSRVVSMVEMDGDGLSFIYEKPSVYHSDGCTGSAARFWKRDH 240

NERAGVELRAGLHFRM 256

Molecular weight: 28,498

Theoetical pI: 5.38

Figure 6b: Predicted Amino Acid Sequence of spliced (M2) product of ISA3mx

MSGFNLEVMVPEQGGKVVFSLTETGSCVSFYGDDEPGGFFPVGLKGSWGGSYLKYVRYAG 60

PLAGSSGFIVNQRFYDRAQNKTGSRVVSMVEMDGDGLSFIYEKPSVYHSDGCTGSAARFW 120

KRDHNERAGVELRAGLHFRM 140

Molecular weight: 15,357

Theoetical pI: 6.82

Figure 6c: Predicted Amino Acid sequence of spliced (M3) product of ISA3mx

MNLLLLLQVASFLSDSKVPGEDGTSSTSGMLDLLRDQVDSLSINDSTTEPKTRLDPGLYP 60

WLKWTETAYRSSTRSLASTIVMGALGQQRGSGNGITMRELELSLGLDFTSECDWLKTCYV 120

NKNFVFLSEKEIAVNMEVEKFICNEN 147

Molecular weight: 14,888

Theoretical pI: 4.65

Figure 7: ISA4ha Nucleotide Sequence

```
cagtcgtcta tgtcttagaa accatcctga caccacctgg ataggtgact cccgaagcga      60
tcaatcaagg gtgaaccaac agtctcttga tctggttaca aacttcaagg gaattctaca     120
agccaagaac gggaatggtc tcatgaagca gatgagcgga aggttcccaa gtgattggta     180
ccaacctact acaaagtata ggattctata cattggtaca aacgactgca ctgagggccc     240
taacgacgtg atcataccga cgtcaatgac actagacaat gtggcaaggg acctgtacct     300
gggagcatgt cgaggagatg taagagtgac accaaccttc gtgggagcag ctgagcttgg     360
actgattggg agaacagatg ccttaacagg attttctgta aaggtgctga ctttcaacaa     420
ccctactatt gtagtagttg gactaaatgg aatgtcagga atctacaagg tctgcattgc     480
tgcctcttct ggaaacgtag gcggagtcaa cttggtgaac ggatgcggat acttcagcgc     540
tcctctgaga ttcgacaact tcaaaggaca gatctacgtg tcagacacct ttgaagtcag     600
aggaacaaag aacaaatgtg tcatacttag atcttctagc aatgctcctt tgtgtacaca     660
tatcaaaaga aacattgagt tggatgagta cgttgacaca ccaaacactg ggggcgtata     720
tccttctgat gggtttgatt ctcttcacgg ctctgcttcg attagaactt ttttaacaga     780
ggcactgaca tgtccaggtg tagattggga cagaattgat gcagcttcat gcgagtatga     840
cagttgtcct aaacttgtga aagaatttga ccaaacaggg ctcggaaaca cagatactca     900
aataatgaga gagctagaag cacaaaagga gatgattggt aaacttggca gaaacattac     960
agacgtaaac aacagagtag atgctattcc accacagctt agcaacatct tcatctctat    1020
gggagtggca ggt                                                       1033
```

Figure 8: ISA4ha Amino Acid Sequence

```
     1          11         21         31         41         51
     |          |          |          |          |          |
   1 SRLCLRNHPD TTWIGDSRSD QSRVNQQSLD LVTNFKGILQ AKNGNGLMKQ MSGRFPSDWY    60
  61 QPTTKYRILY IGTNDCTEGP NDVIIPTSMT LDNVARDLYL GACRGDVRVT PTFVGAAELG   120
 121 LIGRTDALTG FSVKVLTFNN PTIVVVGLNG MSGIYKVCIA ASSGNVGGVN LVNGCGYFSA   180
 181 PLRFDNFKGQ IYVSDTFEVR GTKNKCVILR SSSNAPLCTH IKRNIELDEY VDTPNTGGVY   240
 241 PSDGFDSLHG SASIRTFLTE ALTCPGVDWD RIDAASCEYD SCPKLVKEFD QTGLGNTDTQ   300
 301 IMRELEAQKE MIGKLGRNIT DVNNRVDAIP PQLSNIFISM GVAG
```

Molecular Weight: 37,437

Theoretical pI: 5.38